



CLAIMS:

34. A wind driven power generating device to be driven by an airflow, the device comprising:

a tube cluster comprising

a central outlet tube having a narrowed center for channeling an upward
flowing airflow;

heat radiating surfaces connected to said outlet tube;

a plurality of inlet tubes;

each inlet tube being defined by a cylindrical wall;

each inlet tube further having a collector end located at a
distance from said central outlet tube, each inlet tube
communicating with said central outlet tube for
delivering airflow from said inlet tube collector end to said
central outlet tube;

each collector end comprising a plurality of sails located
adjacent to one another, a bottom end of each said
individual sail extending along a curved boom; and
the generating device further including a turbine in the
outlet tube narrowed center to be driven by the airflow,
and a mechanism for reducing the area of the sail presented
to the ambient airflow in response to a predetermined load
on the sail.

35. A wind driven power generating device to be driven by an airflow, the device comprising:

a tube cluster comprising

a central outlet tube having a narrowed center for channeling
an upward flowing airflow;
a plurality of inlet tubes;
each inlet tube being defined by a cylindrical wall;
each inlet tube further having a collector end located at a
distance from said central outlet tube, each inlet tube
communicating with said central outlet tube for
delivering airflow from said inlet tube collector end to said
central outlet tube;
each collector end having a wind collector assembly comprising a plurality
of sails located adjacent to one another, a bottom end of each said
individual sail extending along a curved boom; and
the generating device further including a turbine in the
outlet tube narrowed center to be driven by the airflow, each
said wind collector assembly comprising.
a vertical mast;
a curved boom;
a flexible sail connected at its top end to the mast and at its bottom end
to the curved boom;
a steering sail for orienting said wind collector assembly with
respect to an ambient airflow;
a tensioner connected to said curved boom and to said bottom
end of said sail whereby wind loads on said sail can be
managed;
a spring-loaded drum; and

a wound cable affixed on one end to said bottom end of said sail, and affixed on another end to said drum, said drum providing constant tension on said sail.

36. A wind driven power generating device to be driven by an airflow, the device comprising:

a tube cluster comprising;

a central outlet tube having a narrowed center for channeling an upward flowing airflow;

a plurality of inlet tubes;

each inlet tube being defined by a cylindrical wall;

each inlet tube further having a collector end located at a distance from said central outlet tube, each inlet tube communicating with said central outlet tube for delivering airflow from said inlet tube collector end to said central outlet tube;

each collector end having a wind collector assembly comprising

a vertical mast;

a curved boom; and

a flexible collector sail connected at its top end to the mast and at its bottom end to the curved boom;

a mechanism for reducing the area of the collector sail presented to the ambient wind airflow in response to a predetermined load on the sail;

a steering sail for orienting said wind collector assembly with respect to an ambient overflow;

and the generating device further including

a turbine in the outlet tube narrowed center to be driven by
the airflow;

37. A wind driven power generating device to be driven by an airflow, the
device comprising:

a tube cluster comprising:

a central outlet tube having a narrowed
center for channeling an upward flowing airflow;

a plurality of inlet tubes;

each inlet tube further having a collector end located at a
distance from said central outlet tube, each inlet tube
communicating with said central outlet tube for
delivering airflow from said inlet tube collector end to said
central outlet tube;

each collector end having a wind collector assembly comprising a
vertical mast;

each said wind collector assembly comprising:

a vertical mast;

a curved boom; and

a plurality of collector sails, each collector sail connected at its
top end to the mast and at its bottom end to the
curved boom;

a steering sail for orienting said wind collector assembly with
respect to an ambient airflow.

a tensioner connected to said curved boom and to said bottom

end of said sail whereby wind loads on said sail can be managed;

a spring-loaded, damped drum;

a wound cable affixed on one end to said bottom end of said sail, and affixed on another end to said drum, said drum providing constant tension on said sail;

the generating device further including a turbine in the outlet tube narrowed center to be driven by the airflow.

19. The wind driven power generating device according to claim 35 wherein said tensioner comprises:

a counterbalance weight;

a cable affixed to one end to said bottom end of said sail and affixed on another end to said counterbalance weight, said counterbalance weight providing a constant tension on said sail.

21. The wind driven power generating device according to claim 35, wherein said mechanism for reducing the sail area comprises:

a collector loop slidably connected to said mast, said loop being movable downwardly along said mast in response to a predetermined load on said sail thereby substantially reducing the area of said sail presented to the ambient airflow.